GROUP 32

POWER PLANT MOUNT

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GENERAL INFORMATION

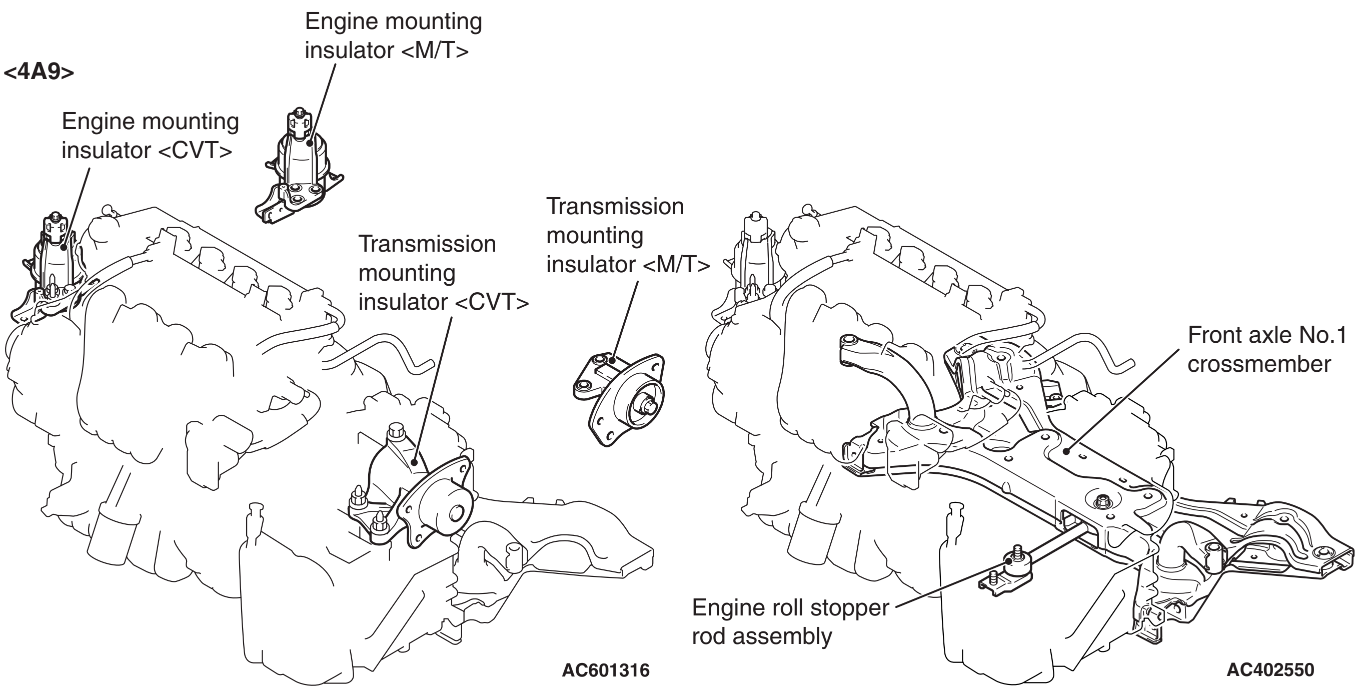
M1321000100953

An inertia main shaft 3-point support type has been adopted as an engine mount system, which has the following features.

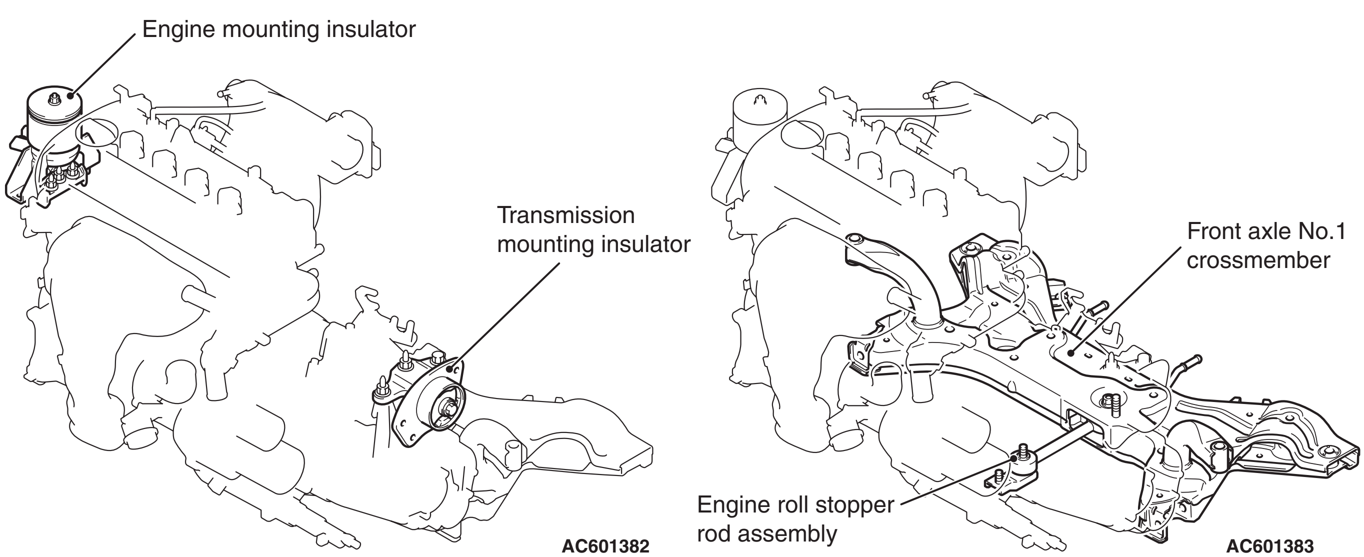
- By optimising the 3-point mount layout, the idling vibration and acceleration noise are decreased drastically.
- The transmission mounting insulator is built into the body side member in order to absorb the vibration transmitted from the engine efficiently.
- By connecting the engine roll stopper rod assembly to the high-rigidity front axle No.1 crossmember, the vibration transmitted from the engine is decreased.

CONSTRUCTION DIAGRAM

<4A9>



<4G1>



AC601523AB

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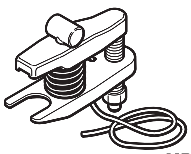
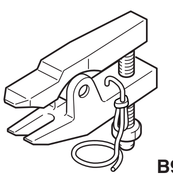
SERVICE SPECIFICATIONS

M1321000300548

Item		Standard value
Protruding length of stabilizer bar bolt thread part mm	4A9	19 ± 1.5
Protruding length of stabilizer link assembly thread part mm	4G1	5 ± 1.5

SPECIAL TOOLS

M1321000600709

Tool	Number	Name	Use
 MB991897	MB991897 or MB992011	Ball joint remover	**<4A9>** • Knuckle and tie rod end ball joint disconnection • Knuckle and lower arm ball joint disconnection *NOTE: Steering linkage puller (MB990635 or MB991113) is also available to disconnect ball joint.*
 B991113	MB991113	Steering linkage puller	**<4G1>** • Knuckle and tie rod end ball joint disconnection • Knuckle and lower arm ball joint disconnection

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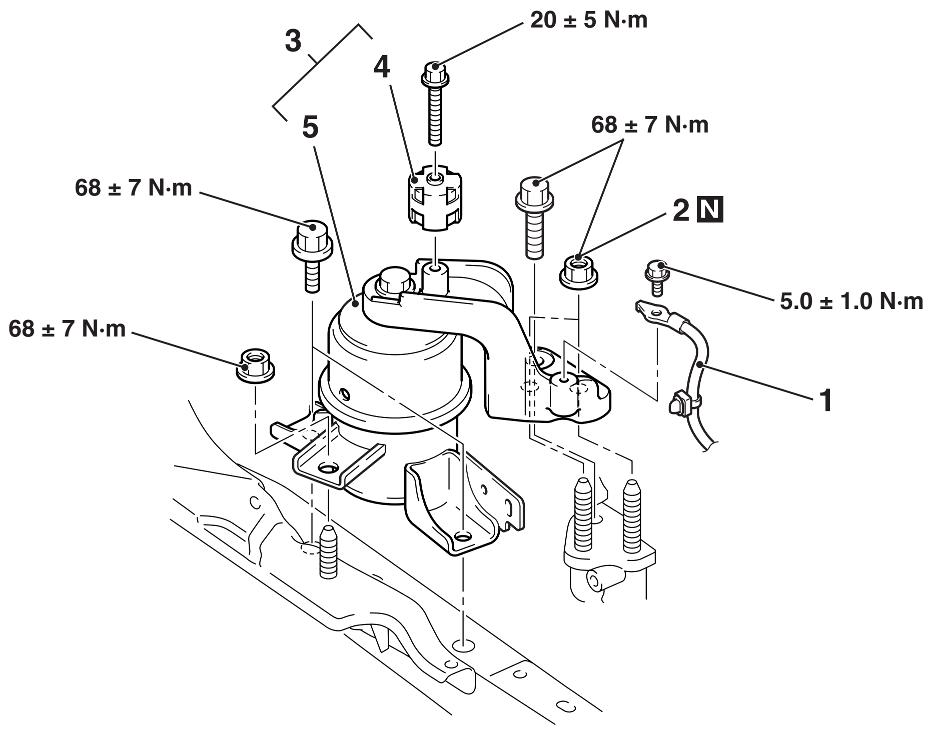
ENGINE MOUNTING

REMOVAL AND INSTALLATION <4A9>

M1321001101302

Pre-removal Operation
Raise the engine and transmission assembly until its weight is not applied to the insulator, and support it securely.

<M/T>



Removal steps

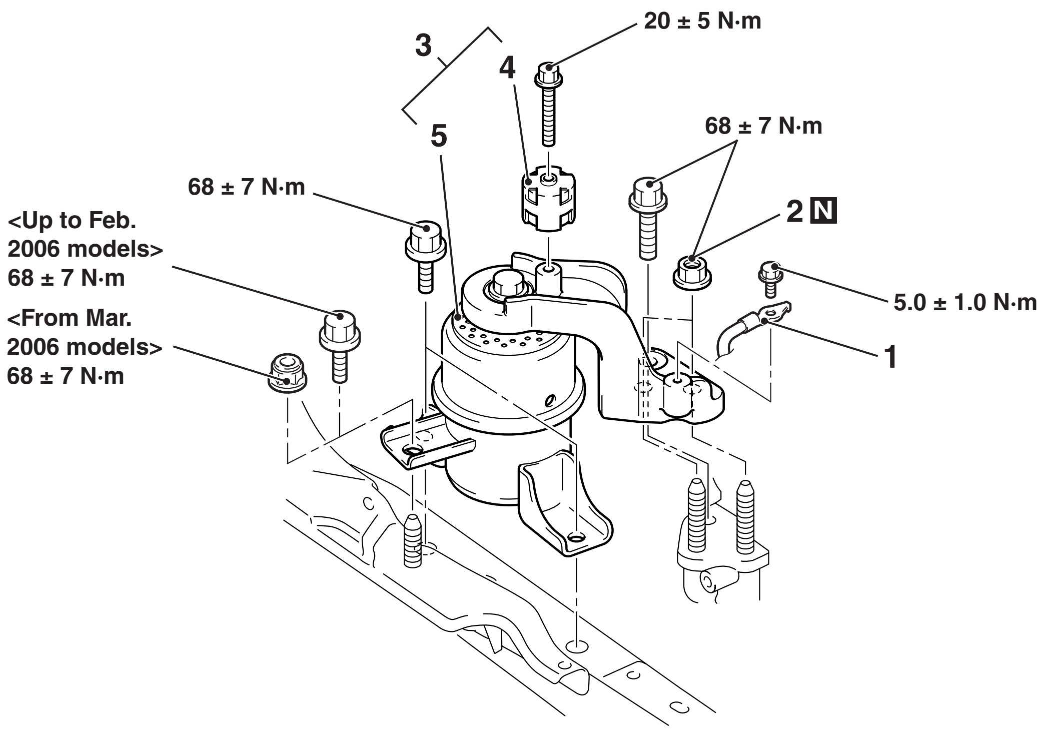
- >>**A**<< 1. Earth cable connection
- 2. Self-locking nut
- 3. Engine mounting insulator and dynamic damper assembly

Removal steps (Continued)

- 4. Engine mounting bracket dynamic damper
- 5. Engine mounting insulator

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<CVT>



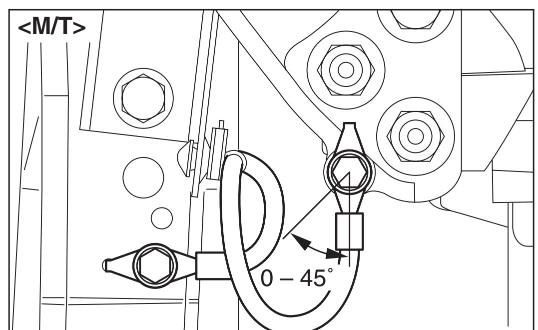
AC601218AB

Removal steps

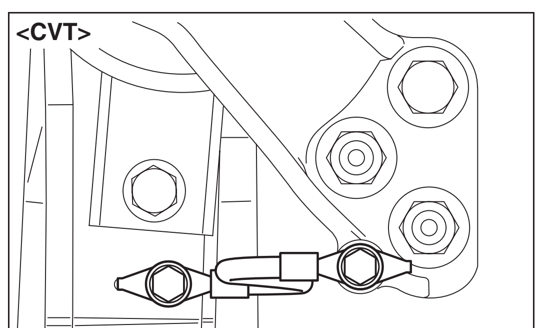
- >>**A**<< 1. Earth cable connection
- 2. Self-locking nut
- 3. Engine mounting insulator and dynamic damper assembly
- 4. Engine mounting bracket dynamic damper
- 5. Engine mounting insulator

INSTALLATION SERVICE POINT

>>A<< EARTH CABLE CONNECTION



AC601219AB



AC601220AB

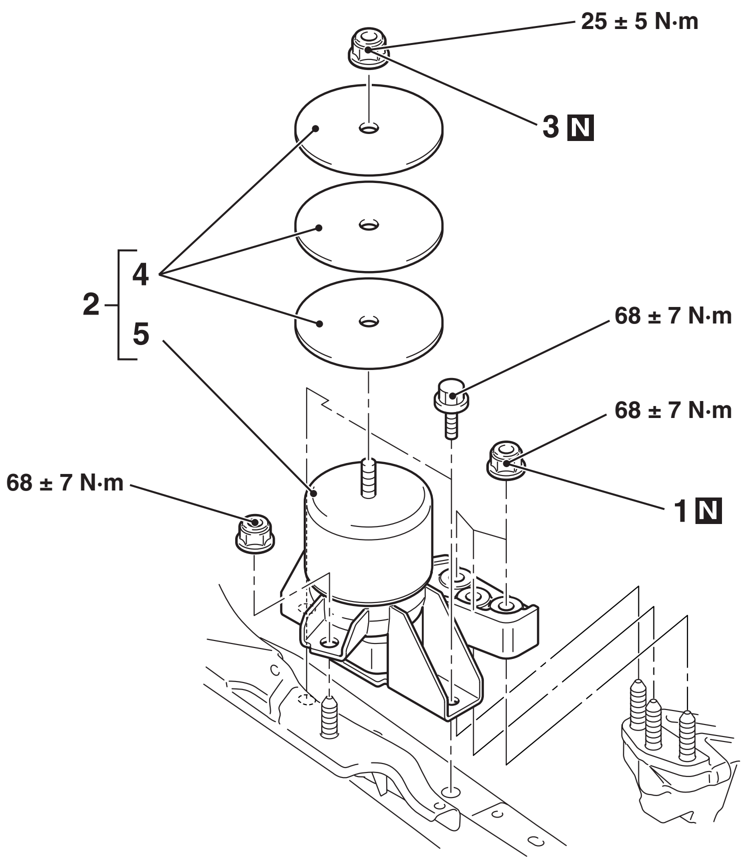
1. Install the earth cable in the direction shown in the illustration.
2. Tighten the earth cable mounting bolts to the specified torque.

Tightening torque: 5.0 ± 1.0 N·m

REMOVAL AND INSTALLATION <4G1>

M1321001101346

Pre-removal Operation
Raise the engine and transmission assembly until its weight is not applied to the insulator, and support it securely.



AC600364AB

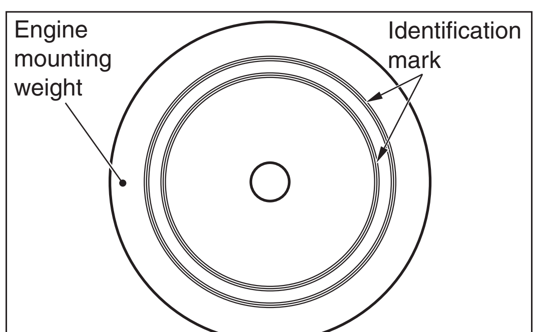
Removal steps

1. Self-locking nut
2. Engine mounting insulator and weight assembly
3. Self-locking nut
4. >>**A**<< Engine mounting weight
5. Engine mounting insulator

INSTALLATION SERVICE POINT

>>A<< ENGINE MOUNTING WEIGHT INSTALLATION

⚠ CAUTION



AC301203AC

The identification mark must face downwards.

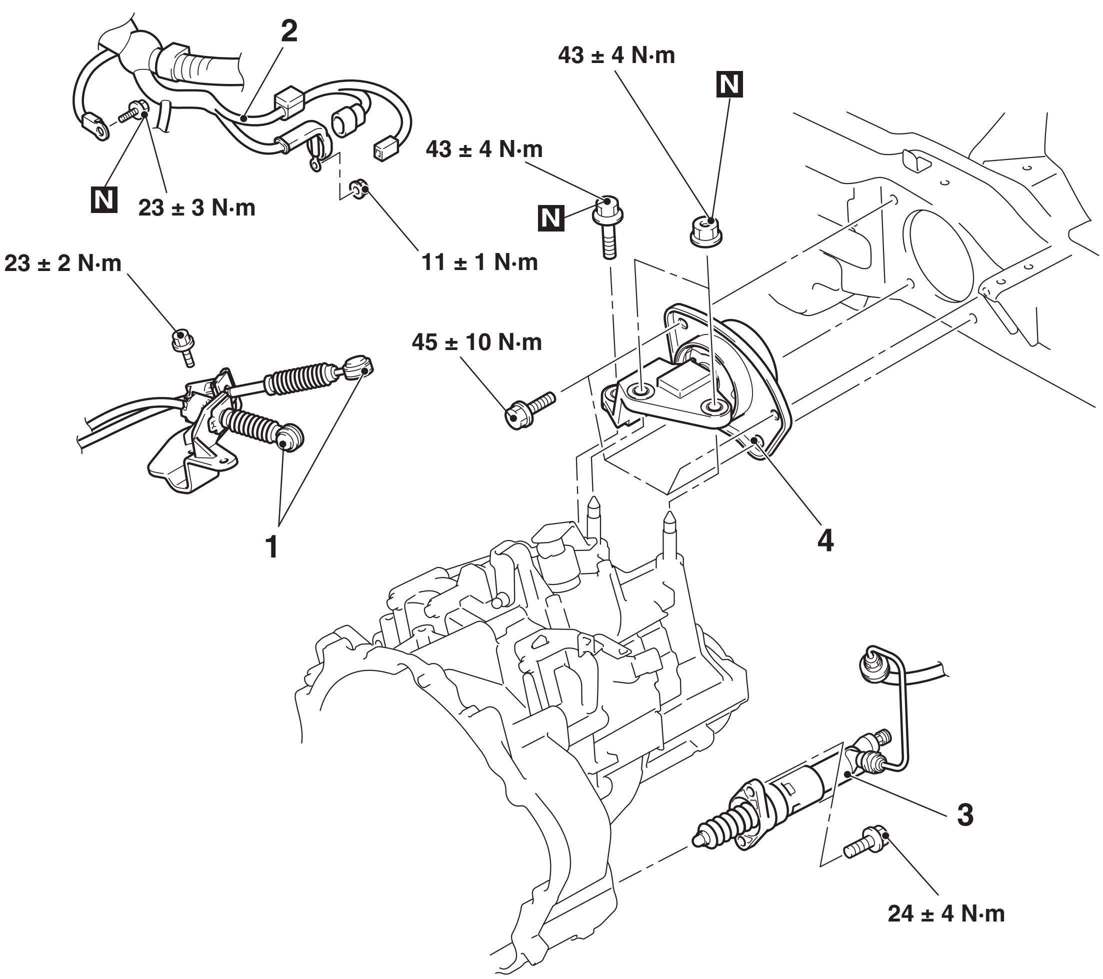
TRANSMISSION MOUNTING

REMOVAL AND INSTALLATION

M1321001401176

Pre-removal Operation	Post-installation Operation
• Air Cleaner Assembly Removal <4A9> (Refer to GROUP 15, Air Cleaner P.15-5). • Air Cleaner Assembly Removal <4G1> (Refer to GROUP 15, Air Cleaner P.15-6). • Battery and Battery Tray Removal • Line Pressure Sensor Removal <CVT> (Refer to GROUP 23A, Valve Body Assembly, Sensors P.23A-155). • Front Under Cover Panel Assembly Removal (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-2). • Engine Room Side Under Cover (LH) Removal • Front Exhaust Pipe Removal <4A9> (Refer to GROUP 15, Exhaust Pipe and Main Muffler P.15-19). • Front Exhaust Pipe Removal <4G1> (Refer to GROUP 15, Exhaust Pipe and Main Muffler P.15-21). • Engine Roll Stopper Rod Assembly Removal (Refer to P.32-11).	• Engine Roll Stopper Rod Assembly Installation (Refer to P.32-11). • Front Exhaust Pipe Installation <4A9> (Refer to GROUP 15, Exhaust Pipe and Main Muffler P.15-19). • Front Exhaust Pipe Installation <4G1> (Refer to GROUP 15, Exhaust Pipe and Main Muffler P.15-21). • Engine Room Side Under Cover (LH) Installation • Front Under Cover Panel Assembly Installation (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-2). • Line Pressure Sensor Installation <CVT> (Refer to GROUP 23A, Valve Body Assembly, Sensors P.23A-155). • Battery and Battery Tray Installation • Air Cleaner Assembly Installation <4A9> (Refer to GROUP 15, Air Cleaner P.15-5). • Air Cleaner Assembly Installation <4G1> (Refer to GROUP 15, Air Cleaner P.15-6).

<4A9-M/T>



AC601222AB

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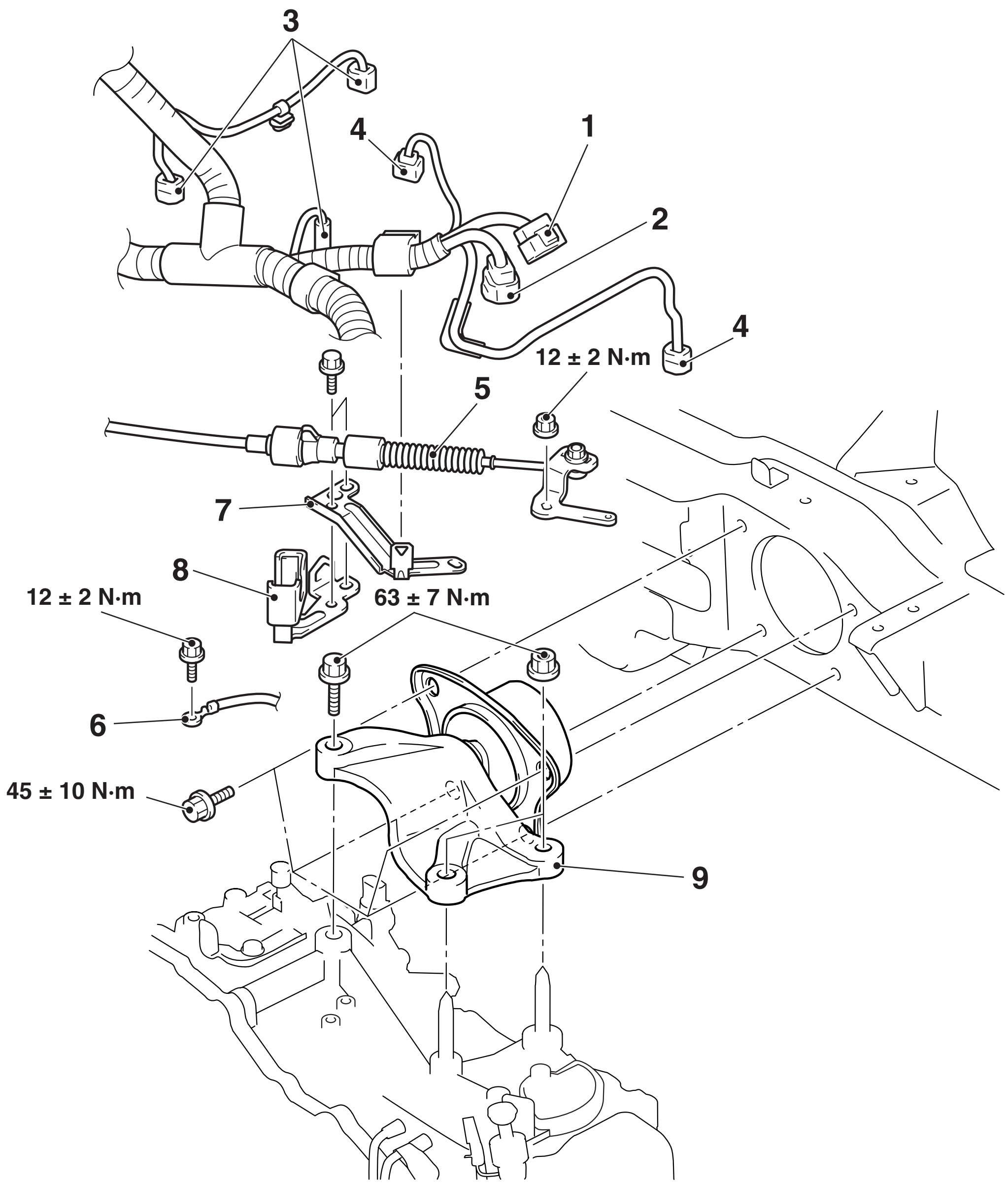
Removal steps

- <<**A**>> 1. Gearshift cable and select cable connection
- 2. Control wiring harness connection
- <<**B**>> 3. Clutch release cylinder assembly

Removal steps (Continued)

- • Raise the engine and transmission assembly until its weight is not applied to the transmission mounting insulator, and support it securely.
- 4. Transmission mounting insulator

<4A9-CVT>



Removal steps

1. CVT solenoid valve connector
2. Inhibitor switch connector
3. Speed sensor connector
4. Oil pressure sensor connector

Removal steps (Continued)

5. Transmission control cable connection
6. Battery earth connection
7. Bracket
8. Control cable support bracket

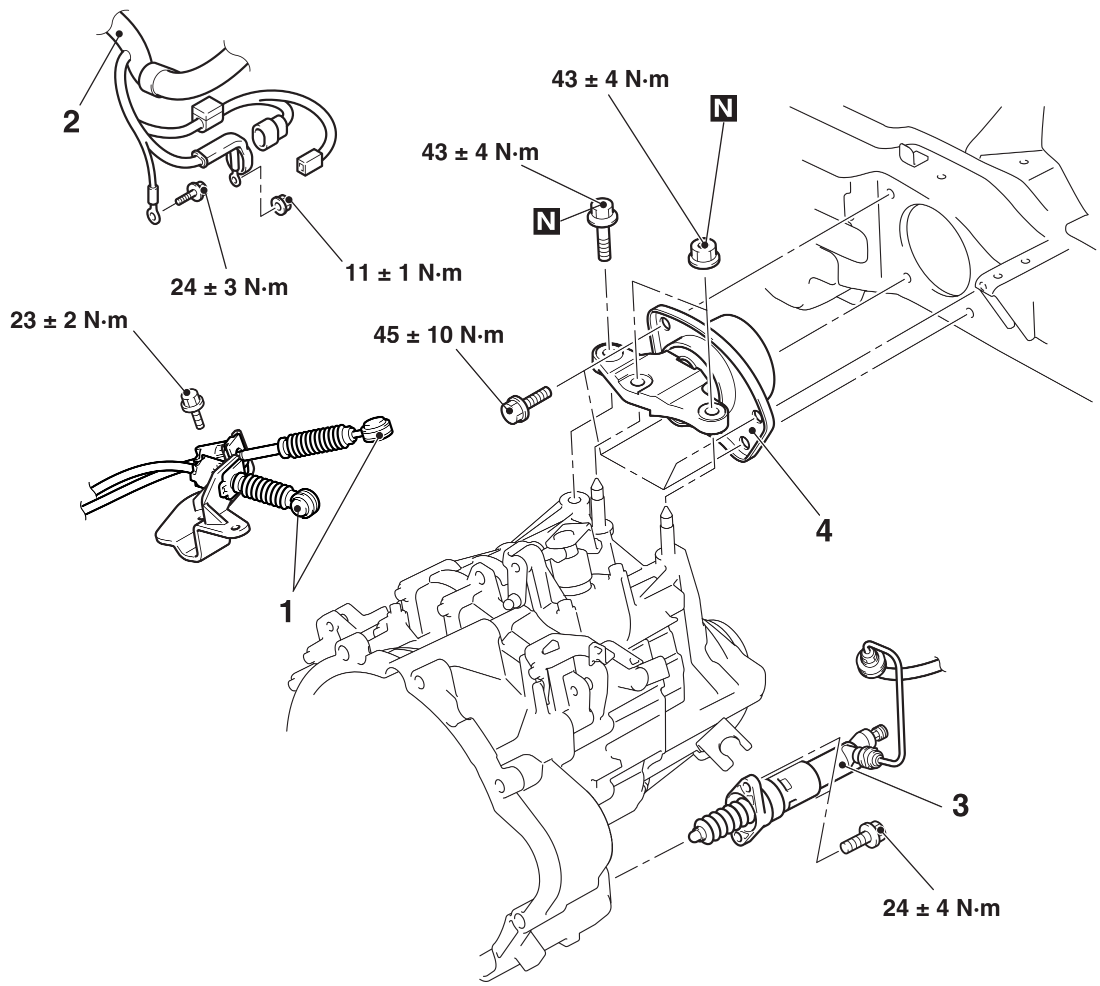
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Removal steps (Continued)

- Raise the engine and transmission assembly until its weight is not applied to the transmission mounting insulator, and support it securely.

9. Transmission mounting insulator

<4G1>



Removal steps

<<**A**>> 1. Gearshift cable and select cable connection
2. Control wiring harness connection
<<**B**>> 3. Clutch release cylinder assembly

Removal steps (Continued)

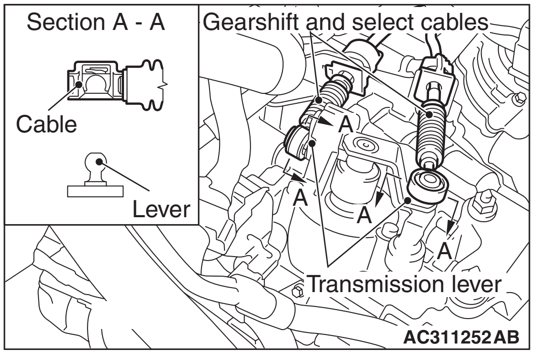
- Raise the engine and transmission assembly until its weight is not applied to the transmission mounting insulator, and support it securely.

4. Transmission mounting insulator

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REMOVAL SERVICE POINTS

<<A>> GEARSHIFT AND SELECT CABLE DISCONNECTION



1. Disconnect the transmission assembly-transmission lever from the ends of the gearshift and select cables.
2. With the bracket installed, remove the gearshift and select cables from the transmission assembly.
3. After removing the gearshift and the select cables, tie them with a string in a place where it will not be a hindrance when jacking up the engine and transmission assembly.

<<B>> CLUTCH RELEASE CYLINDER ASSEMBLY REMOVAL

1. With the hose installed, remove the clutch release cylinder assembly from the transmission assembly.
2. After removing the clutch release cylinder assembly, tie it with a string in a place where it will not be a hindrance when jacking up the engine and transmission assembly.

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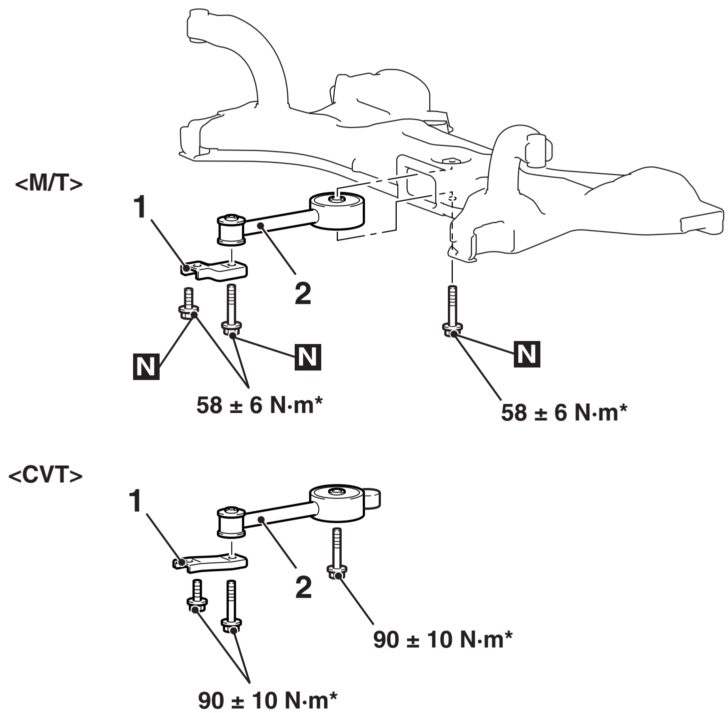
ENGINE ROLL STOPPER ROD

REMOVAL AND INSTALLATION

M1321004900133

⚠ CAUTION

***: Indicates parts which should be temporarily tightened, and then fully tightened after placing the vehicle horizontally and loading the full weight of the engine on the vehicle body.**



Removal steps

1. Engine mounting stay
2. Engine roll stopper rod assembly

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FRONT AXLE CROSSMEMBER

REMOVAL AND INSTALLATION <4A9>

M1321005000490

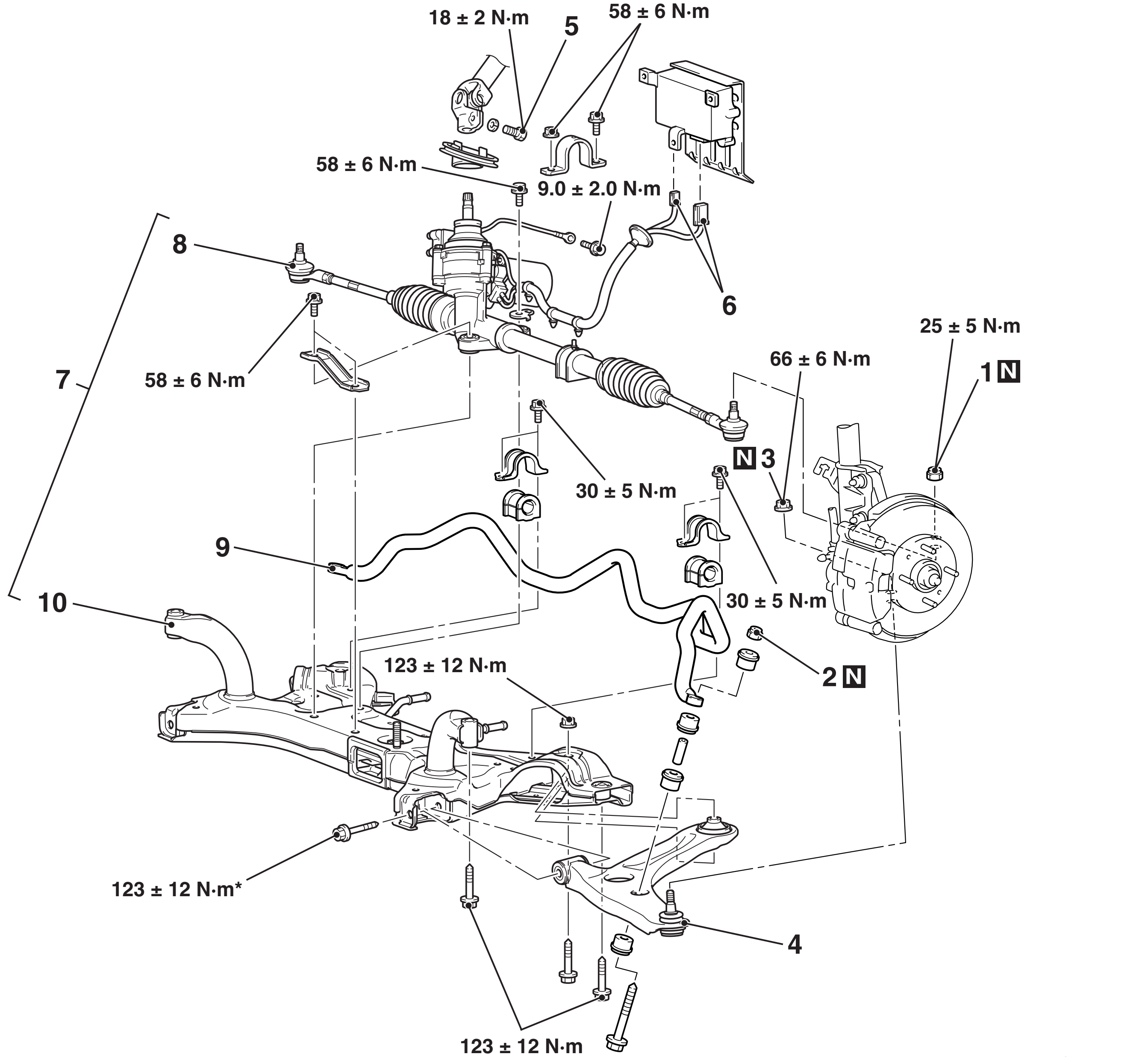
⚠ CAUTION

- **Before removing the steering wheel and air bag module assembly, always refer to GROUP 52B – Service Precautions P.52B-5, Driver's, Front Passenger's Air Bag Modules and Clock Spring P.52B-145. Also, set the front wheels so that they are facing straight forward, and remove the ignition key. If you fail to do this, the SRS clock spring will be damaged, causing the SRS air bag to be inoperative and serious injury.**
- ***: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the earth in the unladen condition.**

Pre-removal Operation	Post-installation Operation
• Air Bag Module and Steering Wheel Removal (Refer to GROUP 52B, Driver's Front Passenger's Air Bag Modules and Clock Spring P.52B-145). • Front Under Cover Panel Assembly Removal (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-2). • Engine Room Side Under Cover (RH) Removal • Front Exhaust Pipe Removal (Refer to GROUP 15, Exhaust Pipe and Muffler P.15-19). • Engine Roll Stopper Rod Assembly Removal (Refer to P.32-11).	• Engine Roll Stopper Rod Assembly Installation (Refer to P.32-11). • Front Exhaust Pipe Installation (Refer to GROUP 15, Exhaust Pipe and Muffler P.15-19). • Engine Room Side Under Cover (RH) Installation • Front Under Cover Panel Assembly Installation (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-2). • Air Bag Module and Steering Wheel Installation (Refer to GROUP 52B, Driver's Front Passenger's Air Bag Modules and Clock Spring P.52B-145). • Checking Steering Wheel Position with Wheels Straight Ahead. • Wheel Alignment Check and Adjustment (Refer to GROUP 33, On-vehicle Service - Front Wheel Alignment Check and Adjustment P.33-5).

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<M/T>



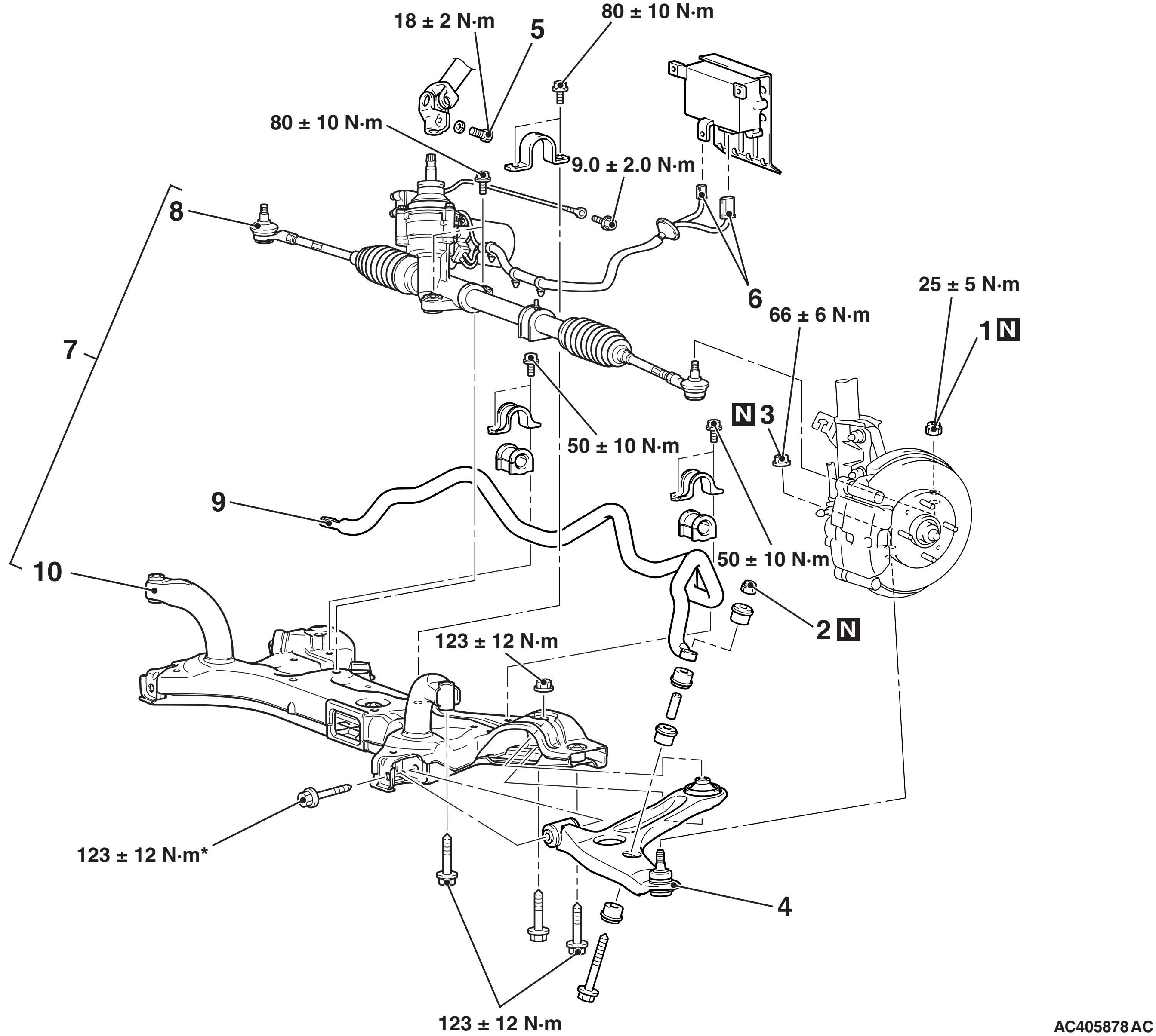
Removal steps

<<A>>		1.	Tie rod end and knuckle connection
	>>F<<	2.	Self-locking nut
<<A>>		3.	Lower arm and knuckle connection
		4.	Lower arm assembly
<<B>>	>>E<<	5.	Steering gear and steering column assembly connecting bolt

Removal steps (Continued)

	>>D<<	6.	Electric power steering-ECU connector
<<C>>	>>C<<	7.	Front axle No.1 crossmember assembly
	>>B<<	8.	Steering gear and linkage assembly
	>>A<<	9.	Stabilizer bar
		10.	Front axle No.1 crossmember

<CVT>



AC405878 AC

Removal steps

<<**A**>>		1.	Tie rod end and knuckle connection
	>>**F**<<	2.	Self-locking nut
<<**A**>>		3.	Lower arm and knuckle connection
		4.	Lower arm assembly
<<**B**>>	>>**E**<<	5.	Steering gear and steering column assembly connecting bolt

Removal steps (Continued)

	>>**D**<<	6.	Electric power steering-ECU connector
<<**C**>>	>>**C**<<	7.	Front axle No.1 crossmember assembly
	>>**B**<<	8.	Steering gear and linkage assembly
	>>**A**<<	9.	Stabilizer bar
		10.	Front axle No.1 crossmember

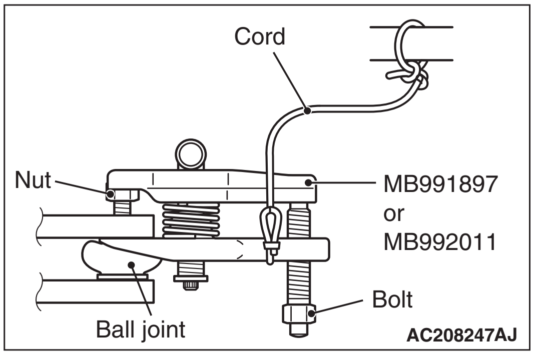
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REMOVAL SERVICE POINTS

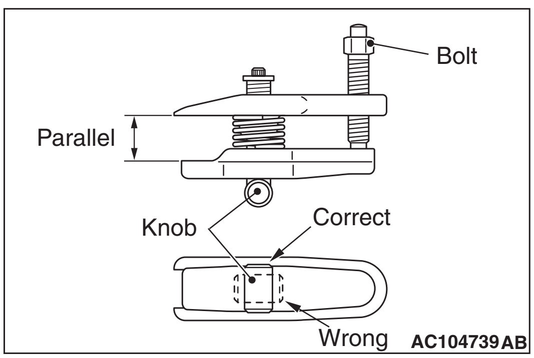
<<A>> TIE ROD END AND KNUCKLE/LOWER ARM AND KNUCKLE DISCONNECTION

⚠ CAUTION

- **Do not remove the nut from ball joint. Loosen it and use the special tool to avoid possible damage to ball joint threads.**
- **Hang the special tool with cord to prevent it from falling.**



1. Install the special tool ball joint remover (MB991897 or MB992011) as shown in the figure.

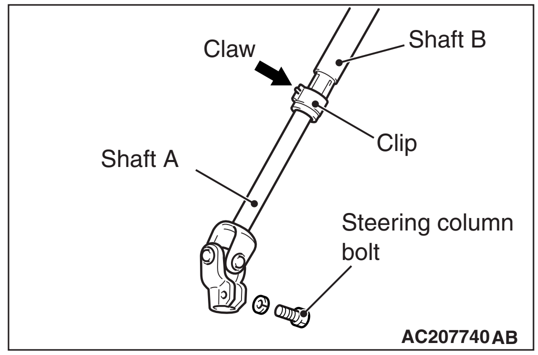


2. Turn the bolt and knob as necessary to make the jaws of the special tool parallel, tighten the bolt by hand and confirm that the jaws are still parallel.

   NOTE: When adjusting the jaws in parallel, make sure the knob is in the position shown in the figure.

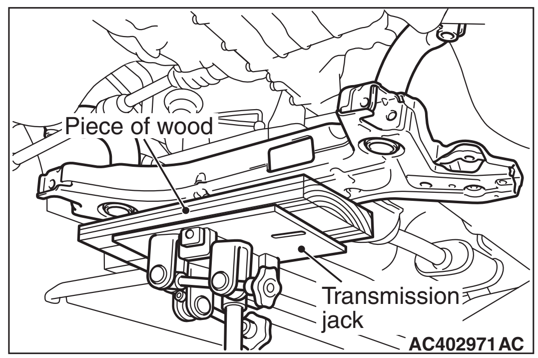
3. Disengage the lower arm and tie rod end from the knuckle by tightening the bolt with a wrench.

<<B>> STEERING GEAR AND STEERING COLUMN ASSEMBLY DISCONNECTION



1. Remove the steering column bolt connecting steering gear to steering column assembly.
2. Disconnect the steering gear from the steering column assembly while sliding shaft A to shaft B with the clip claw as shown is pinched.

<<C>> FRONT AXLE NO.1 CROSSMEMBER ASSEMBLY REMOVAL

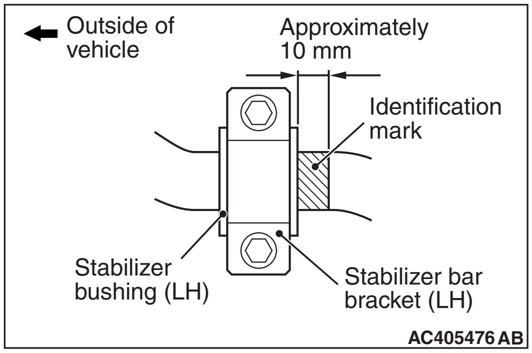


Use a transmission jack to hold the front axle No.1 crossmember, and then remove the crossmember mounting nuts and bolts.

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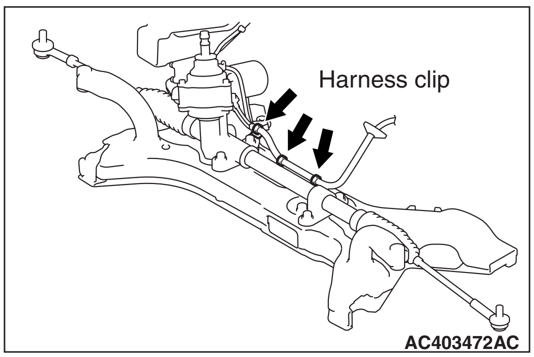
INSTALLATION SERVICE POINTS

>>A<< STABILIZER BAR INSTALLATION



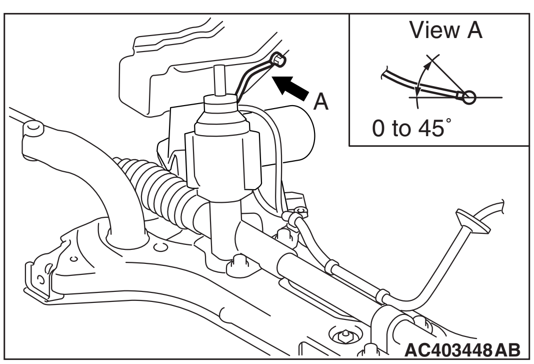
Align the stabilizer bar identification mark with the right end of the stabilizer bushing (LH).

>>B<< STEERING GEAR AND LINKAGE ASSEMBLY INSTALLATION



After installing the steering gear and linkage assembly to the front axle No.1 crossmember, secure the 3 harness clips of the steering gear and linkage assembly to the front axle No.1 crossmember.

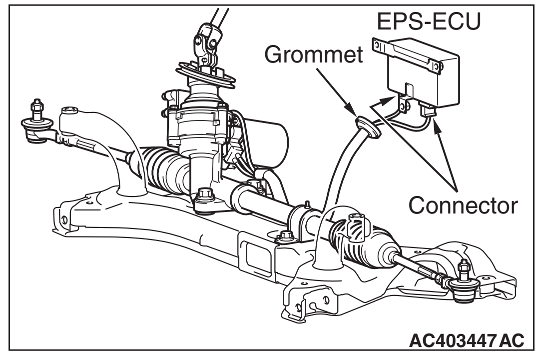
>>C<< FRONT AXLE NO.1 CROSSMEMBER ASSEMBLY INSTALLATION



After installing the front axle No.1 crossmember assembly, tighten the bolt to the specified torque so that the installation angle of the earth cable is within the range shown in the figure.

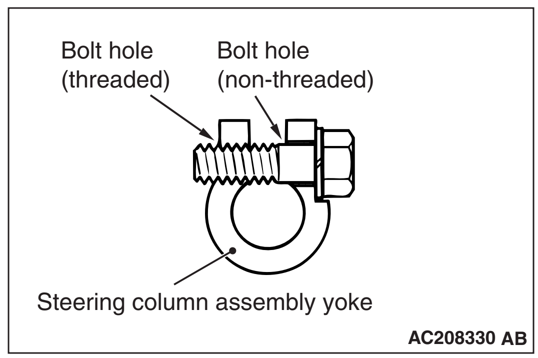
Tightening torque: 9.0 ± 2.0 N·m

>>D<< ELECTRIC POWER STEERING-ECU CONNECTOR INSTALLATION



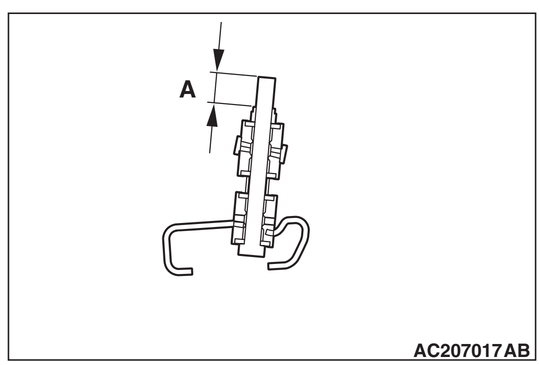
Firmly secure the grommet to the body panel and connect the connector to the electric power steering-ECU.

>>E<< STEERING GEAR AND STEERING COLUMN ASSEMBLY CONNECTING BOLT INSTALLATION



Insert the steering gear and steering column assembly connecting bolt into the non-threaded bolt hole.

>>F<< SELF-LOCKING NUT INSTALLATION



Install the stabilizer rubber as shown in the figure, and tighten the self-locking nut so that the protrusion of the stabilizer bar bolt is within the standard value.

Standard value (A): 19 ± 1.5 mm

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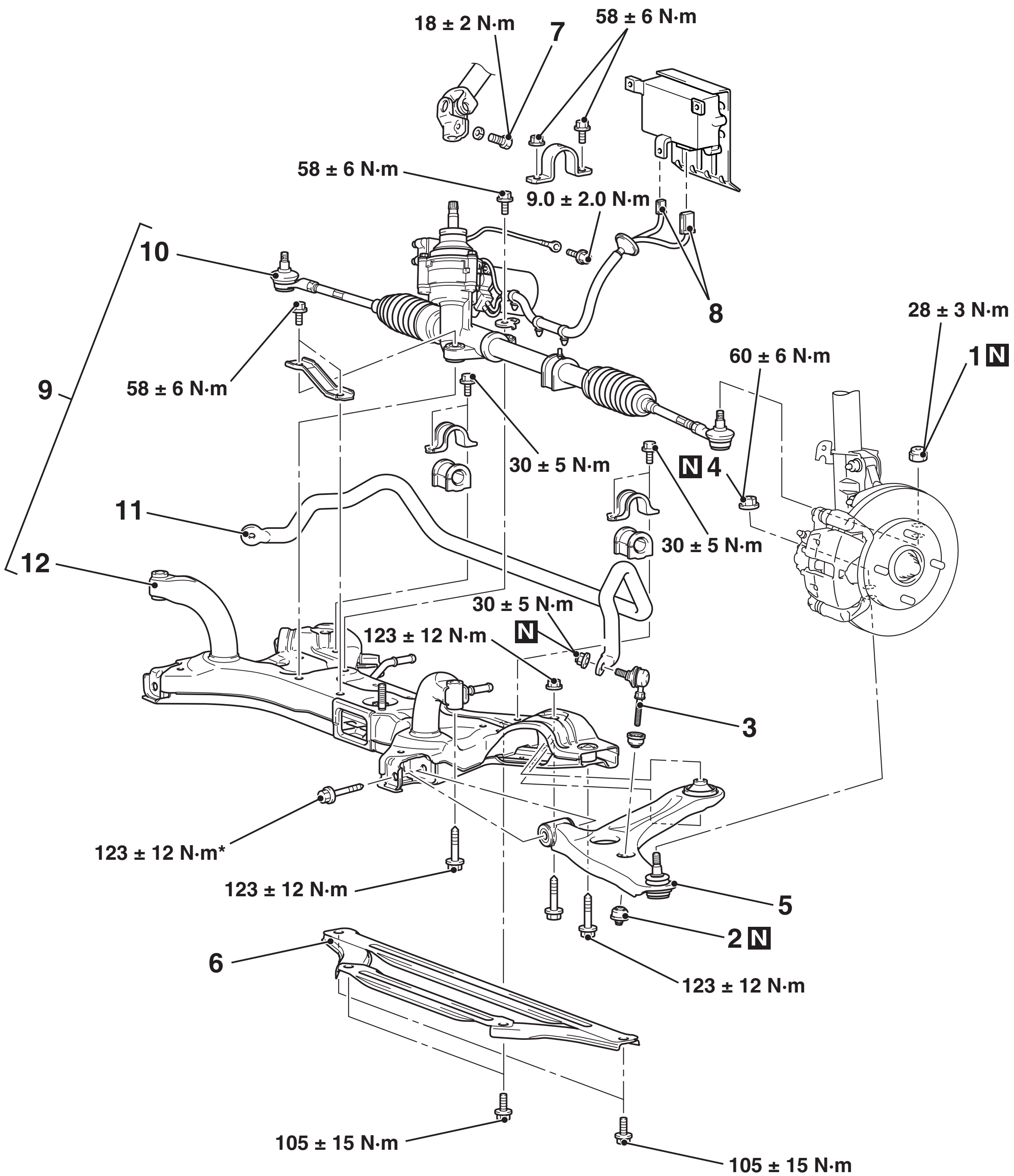
REMOVAL AND INSTALLATION <4G1>

M1321005000508

⚠ CAUTION

- **Before removing the steering wheel and air bag module assembly, always refer to GROUP 52B – Service Precautions P.52B-5, Driver's, Front Passenger's Air Bag Modules and Clock Spring P.52B-145. Also, set the front wheels so that they are facing straight forward, and remove the ignition key. If you fail to do this, the SRS clock spring will be damaged, causing the SRS air bag to be inoperative and serious injury.**
- ***: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the earth in the unladen condition.**
- **After the adjustment of the wheel alignment, perform a calibration for the ASC-ECU to learn the steering wheel sensor neutral point. (Refer to GROUP 35C, On-vehicle Service – Steering wheel sensor neutral point learning P.35C-119.)**

Pre-removal Operation	Post-installation Operation
• Air Bag Module and Steering Wheel Removal (Refer to GROUP 52B, Driver's Front Passenger's Air Bag Modules and Clock Spring P.52B-145). • Front Under Cover Panel Assembly Removal (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-2). • Engine Room Side Under Cover (RH) Removal • Front Exhaust Pipe Removal (Refer to GROUP 15, Exhaust Pipe and Muffler P.15-21). • Engine Roll Stopper Rod Assembly Removal (Refer to P.32-11).	• Engine Roll Stopper Rod Assembly Installation (Refer to P.32-11). • Front Exhaust Pipe Installation (Refer to GROUP 15, Exhaust Pipe and Muffler P.15-21). • Engine Room Side Under Cover (RH) Installation • Front Under Cover Panel Assembly Installation (Refer to GROUP 51, Front Bumper Assembly and Radiator Grille P.51-2). • Air Bag Module and Steering Wheel Installation (Refer to GROUP 52B, Driver's Front Passenger's Air Bag Modules and Clock Spring P.52B-145). • Checking Steering Wheel Position with Wheels Straight Ahead. • Wheel Alignment Check and Adjustment (Refer to GROUP 33, On-vehicle Service - Front Wheel Alignment Check and Adjustment P.33-5).



AC600693AB

Removal steps

<<**A**>>		1.	Tie rod end and knuckle connection
	>>**F**<<	2.	Stabilizer link bushing (A)
	>>**F**<<	3.	Stabilizer link assembly
<<**A**>>		4.	Lower arm and knuckle connection
		5.	Lower arm assembly
		6.	Front suspension axle side plate
<<**B**>>	>>**E**<<	7.	Steering gear and steering column assembly connecting bolt

Removal steps (Continued)

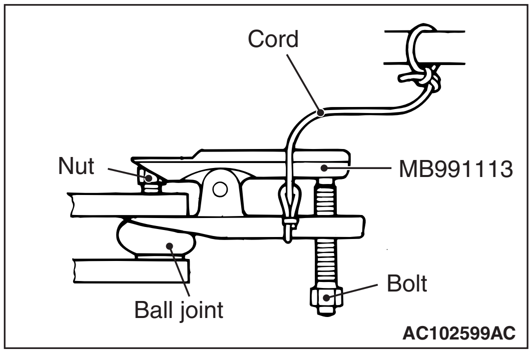
	>>**D**<<	8.	Electric power steering-ECU connector
<<**C**>>	>>**C**<<	9.	Front axle No.1 crossmember assembly
	>>**B**<<	10.	Steering gear and linkage assembly
	>>**A**<<	11.	Stabilizer bar
		12.	Front axle No.1 crossmember

REMOVAL SERVICE POINTS

<<A>> TIE ROD END AND KNUCKLE/LOWER ARM AND KNUCKLE DISCONNECTION

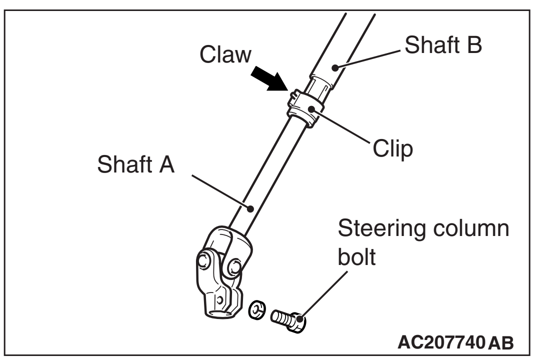
⚠ CAUTION

Hang the special tool with cord to prevent it from falling.



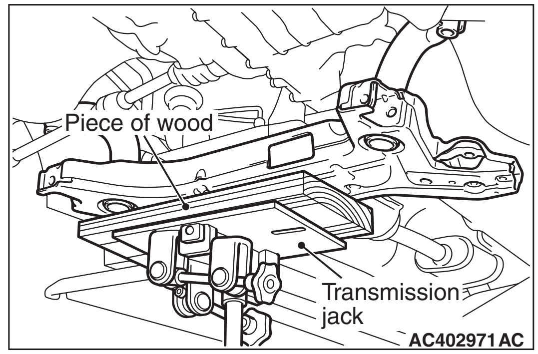
1. Replace the self-locking nut with a regular nut, and then install special tool steering linkage puller (MB991113) as shown in the figure.
2. Disengage the lower arm and tie rod end from the knuckle by tightening the bolt with a wrench.

<<B>> STEERING GEAR AND STEERING COLUMN ASSEMBLY DISCONNECTION



1. Remove the steering column bolt connecting steering gear to steering column assembly.
2. Disconnect the steering gear from the steering column assembly while sliding shaft A to shaft B with the clip claw as shown is pinched.

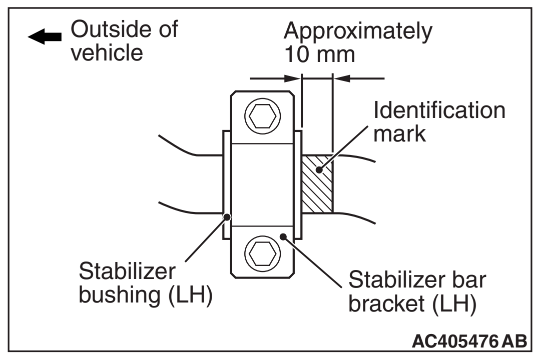
<<C>> FRONT AXLE NO.1 CROSSMEMBER ASSEMBLY REMOVAL



Use a transmission jack to hold the front axle No.1 crossmember, and then remove the crossmember mounting nuts and bolts.

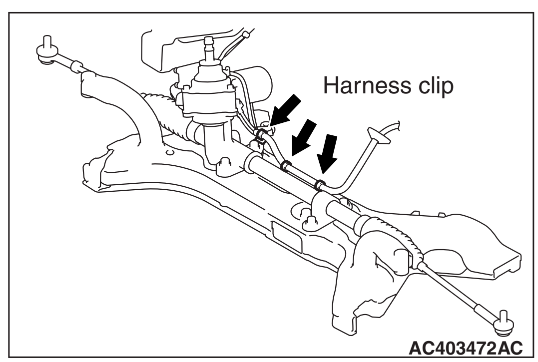
INSTALLATION SERVICE POINTS

>>A<< STABILIZER BAR INSTALLATION



Align the stabilizer bar identification mark with the right end of the stabilizer bushing (LH).

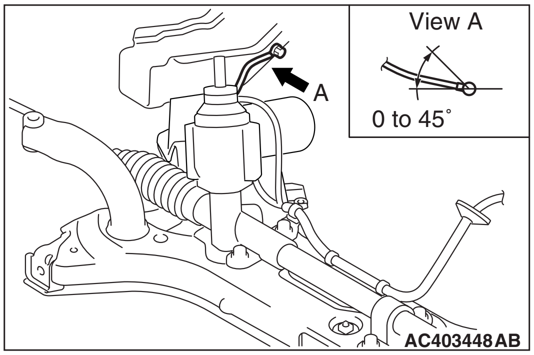
>>B<< STEERING GEAR AND LINKAGE ASSEMBLY INSTALLATION



After installing the steering gear and linkage assembly to the front axle No.1 crossmember, secure the 3 harness clips of the steering gear and linkage assembly to the front axle No.1 crossmember.

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Group TOC

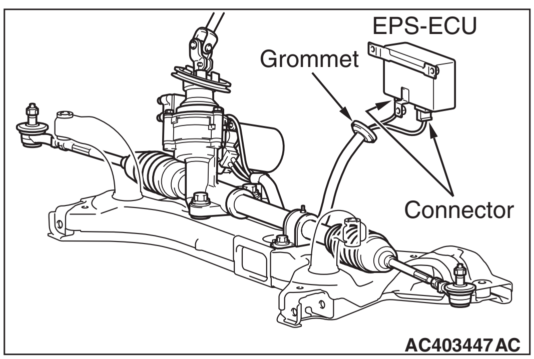
>>C<< FRONT AXLE NO.1 CROSSMEMBER ASSEMBLY INSTALLATION



After installing the front axle No.1 crossmember assembly, tighten the bolt to the specified torque so that the installation angle of the earth cable is within the range shown in the figure.

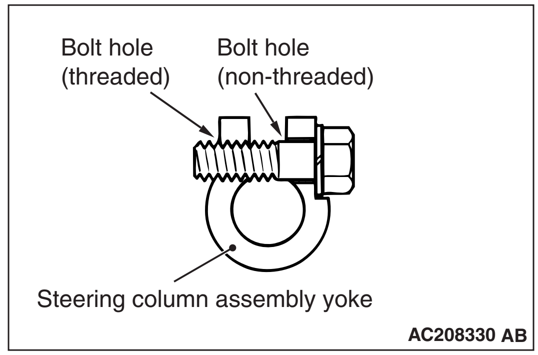
Tightening torque: 9.0 ± 2.0 N·m

>>D<< ELECTRIC POWER STEERING-ECU CONNECTOR INSTALLATION



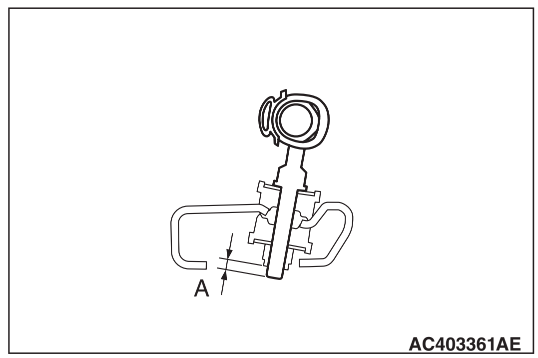
Firmly secure the grommet to the body panel and connect the connector to the electric power steering-ECU.

>>E<< STEERING GEAR AND STEERING COLUMN ASSEMBLY CONNECTING BOLT INSTALLATION



Insert the steering gear and steering column assembly connecting bolt into the non-threaded bolt hole.

>>F<< STABILIZER LINK ASSEMBLY/STABILIZER LINK BUSHING (A) INSTALLATION



Install the stabilizer link bushing in the direction shown in the figure, and tighten the stabilizer link bushing (A) so that the protrusion of the stabilizer link assembly is within the standard value.

Standard value (A): 5 ± 1.5 mm